

REMARKS

This paper is submitted in response to the Office Action mailed May 11, 2004.

Claims 1-32 are pending in the application. Claims 6-13 and 19-32 have been withdrawn.

Claims 1-5 and 14-18 are under consideration.

The Rejection under 35 U.S.C. § 112, ¶1 Should Be Withdrawn

Claims 14 has been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner alleges that the claimed subject matter was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim 14 recites a kit comprising a component for detection the presence of S100-A7, S100-A8, or S100-A9, but the Examiner alleges that the specification does not describe a genus of kits comprising a genus of components. The Examiner alleges that the specification describes an antibody for detecting S100-A7, S100-A8, or S100-A9, but does not describe any other component that may bind S100-A7, S100-A8, or S100-A9 in a detectable manner.

Applicants respectfully disagree. The specification clearly contemplates the use of a genus of components that may be used in the detection of S100 proteins. For example, the specification discloses the use of antibodies, (p. 7, lines 12-13), and reagents *other than* antibodies, such as “polypeptides that bind specifically to S100 proteins (p. 7, lines 14-15). The specification also discloses antibody fragments (p. 3, lines 27-28). Applicants assert that one of skill in the art would find support in the specification for a genus of components. Therefore,

applicants submit that the subject matter of claim 14 is sufficiently described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention and respectfully request withdrawal of the rejection.

The Rejections under 35 U.S.C. § 102(a) Should Be Withdrawn

Claims 1, 2, 4, 5, 14 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by International Patent Publication No. WO98/35985 to Hanash. The Examiner alleges that Hanash teaches an antibody that binds MRP14/S100-A9 that can be used to determine and compare the amounts of MRP14/S100-A9 in the serum of a subject having a lung tumor and the serum of an unaffected subject. The Examiner also alleges that the determination was made by an integrated analysis of reactivity in a visualized band, thereby alleging implicitly teaching that either the antibody that binds MRP14/S100-A9 is detectably labeled or detectably labeled secondary antibody, which binds the primary antibody is used in determining the amount of MRP14/S100-A9 in the serum samples. The Examiner also alleges that Hanash teaches a method for detecting a lung tumor comprising treating a tissue section with an antibody specific for an epitope formed by heterodimerization of MRP8/S100-A8 and MRP14/S100-A9 and determining the amount of antibody bound as indication of the present of a lung tumor. Applicants respectfully traverse the rejection.

Hanash relates to the identification of protein markers associated with various types of lung cancer tumors by separation of proteins from tumors using two dimensional (2-D) gel electrophoresis. The diagnosis is focused on the detection of overexpressed proteins in the tumor itself. By comparison of the 2-D profiles from tumor and non-tumor tissues, the inventors

identify patterns of spots on gels correlating to the pathogenic condition. Therefore, the primary focus of the cited reference is a detection method based on tumor tissue. Therefore, applicant requests the withdrawal of the rejection of claims 1, 2, 4, 5, 14 and 15 under 35 U.S.C. 102(a).

Claim 14 has been rejected under 35 U.S.C. 102(b) as being anticipated by BIORAD Life Sciences Research Products Price List. The Examiner alleges that the reference teaches a kit comprising a component for detecting the presence of S100-A7, S100-A8, or S100-A9 in a biological sample. The Examiner alleges that the reference teaches an assay which comprises at least one component for detecting the presence of S100-A7, S100-A8, or S100-A9.

Applicants respectfully traverse the rejection. BIORAD Life Sciences Research Products Price List fails to disclose a kit for diagnosing cancer in a subject that comprises a component for detecting the presence of a S100 protein. It merely teaches kits that may be used for immunoprecipitation, western blotting, cell labeling, flow cytometry, etc. The kits comprise a primary or secondary antibody, Protein A or Protein G, conjugated to various reagents to facilitate detection of the protein of interest. There is no kit disclosed which teaches the specific detection of S100 proteins. Since the reference fails to teach each and every element of the claimed invention, applicants submit that the claimed invention is not anticipated and respectfully request the withdrawal of rejection of claim 14 under 35 U.S.C. 102(b).

The Examiner has also rejected claims 14 and 15 under 35 U.S.C. 102(a) as being anticipated by Newton et al. The Examiner alleges that Newton et al. teaches a kit comprising a component for detecting MRP8/S100-A8 and MRP14/S100-A9, which component is an anti-S100 antibody. Applicants respectfully disagree.

Newton et al. is directed to a study of factors affecting neutrophil adhesion and the roles of MRP8/S100-A8 and MRP14/S100-A9 in neutrophil function. It fails to disclose a kit for *diagnosis of cancer* in a subject. One of skill in the art would not have anticipated that an antibody capable of recognizing the MRP8/14 heterodimer can be used for the diagnosis or monitoring of cancer in a subject. Therefore, applicants submit that the claimed invention is not anticipated and respectfully request the withdrawal of rejection of claims 14 and 15 under 35 U.S.C. 102(a).

The Rejections under 35 U.S.C. § 103(a) Should Be Withdrawn

Claims 3 and 16-18 have been rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over International Patent Publication No. WO98/35985 to Hanash, as applied to claims 1, 2, 4, 5, 14, and 15 under 35 U.S.C. 102(a), in view of BIORAD Life Sciences Research Products Price List. The Examiner acknowledges that Hanash fails to teach an immunoassay kit that is an immunoprecipitation assay, detectably labeled anti-S100 antibody, wherein the label is radioactive, fluorescent, colorimetric, or enzyme, or a kit comprising an anti-S100 antibody and a labeled secondary antibody that binds the anti-S100 antibody. The Examiner alleges that BIORAD Life Sciences Research Products Price List teaches a kit comprising a component for detecting the presence of S100-A8 and S100-A9 in a biological sample. The Examiner also alleges that the reference shows that it was routine at the time of the invention to detect and quantify a protein by immunoprecipitation and/or immunoblot using a primary antibody that is detectably labeled or an unlabeled primary antibody and detectably labeled secondary antibody. The Examiner also alleges that it would be prima facie obvious to

one of ordinary skill in the art at the time of the invention (1) to use an immunoassay to detect or quantify a protein by immunoprecipitation; (2) to manufacture a kit comprising reagents for detecting S100-A8 and/or S100-A9 and to use it for the diagnosis of a lung tumor; and (3) to manufacture a kit comprising reagents for detecting S100-A8 and/or S100-A9 and to use it for the diagnosis of a lung tumor where the kit further comprises a detectably labeled secondary antibody that binds the antibody disclosed by Hanash. Applicants respectfully disagree.

Applicants submit that claims 3 and 16-18 are not unpatentable over the cited references. As indicated above, the primary reference discloses a detection method based primarily on tumor tissue. In addition, there is no motivation provided in Hanash to combine with any reference to produce a kit capable of diagnosing cancer in a subject comprising detecting at least one S100 protein selected from the group consisting of S100-A7, S100-A8 and S100-A9 in a biological fluid sample derived from a subject and comparing the level of protein detected in the subject's sample to the level of protein detected in a control sample, wherein an increase in the level of S100 protein detected in the subject's sample as compared to a control sample is an indicator of a subject with cancer. Therefore, applicants submit that the pending claims are not obvious over Hanash in view of BIORAD Life Sciences Research Products Price List and respectfully request withdrawal of the rejection of claims 3 and 16-18 under 35 U.S.C. § 103(a).

#### Double Patenting Rejection

Claims 1, 2, 4, and 5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 13-15 of copending U.S.

Patent Application Serial No. 10/461,424. The Examiner indicates that the conflicting claims are not identical, but are not patentably distinct from each other. Claims 3 and 14-18 are also rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 13-15, as applied to claims 1, 2, 4, and 5 and further in view of BIORAD Life Sciences Research Products Price List.

A terminal disclaimer will be filed upon notification of allowable claims.

CONCLUSION

Entry of the foregoing remarks is respectfully requested. Applicants believe that the invention described and defined by the claims is patentable over the rejections of the Examiner. Withdrawal of all rejections and reconsideration of the claims is requested. An early allowance is earnestly sought.

Applicants request a three month extension of time and the Commissioner is hereby authorized to charge the requisite fee as set forth in 37 C.F.R. § 1.17(a)(3) to Deposit Account 02-4377. Applicant does not believe that any additional fee is required in connection with the submission of this document. However, should any fee be required, or if any overpayment has been made, the Commissioner is hereby authorized to charge any fees, or credit any overpayments made, to Deposit Account 02-4377. A duplicate copy of this sheet is enclosed.

Respectfully submitted,



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